1. An apparatus for generating short-duration pulses, the apparatus comprising:

an input line configured to receive an input signal having a first arbitrary frequency;

an output line configured to send a photonic signal to a photonic destination device operating at a second arbitrary frequency different from the first arbitrary frequency; and

a self-synchronizing interface operable to synchronize transfer of information received from the input line, at the first arbitrary frequency, to the output line, at the second arbitrary frequency.

2. The apparatus of claim 1, wherein the self-synchronizing interface is operable at an operation frequency limited by the order of magnitude of a wavelength corresponding to the photonic signal.

3. The apparatus of claim 2, wherein the input signal is selected from a photonic input signal and an electronic input signal.

4. The apparatus of claim 3, wherein the input signal is an input pulse.

5. The apparatus of claim 4, wherein the self-synchronizing interface further comprises a pulse generator operating fully photonically.

6. The apparatus of claim 5, wherein the pulse generator is configured to generate, repetitively, sequences of photonic pulses derived from a beat frequency corresponding to an interaction of two, photonic, source frequencies.

7. The apparatus of claim 6, wherein the fully-photonic, pulse generator provides timing pulses as a time base of the self-synchronizing interface.

8. The apparatus of claim 7, wherein the self-synchronizing interface further comprises a sampling module for sampling the input signal in order to transfer information therefrom into the output signal.

9. The apparatus of claim 1, wherein the input signal is selected from a photonic input signal and an electronic input signal.

10. The apparatus of claim 1, wherein the input signal is an input pulse.

11. The apparatus of claim 1, wherein the self-synchronizing interface further comprises a pulse generator operating fully photonically.

12. The apparatus of claim 1, wherein the self-synchronizing interface is further configured to generate, repetitively, sequences of photonic signals derived from a beat frequency corresponding to an interaction of two, photonic, source frequencies.

13. The apparatus of claim 1, further comprising a fully-photonic, pulse generator configured to provide timing pulses as a time base of the self-synchronizing interface.

14. The apparatus of claim 1, wherein the self-synchronizing interface further comprises a sampling module for sampling the input signal in order to transfer information therefrom into the output signal.

15. The apparatus of claim 1, wherein at least one of the first and second arbitrary frequencies corresponds to a bit rate.

16. The apparatus of claim 1, wherein at least one of the first and second arbitrary frequencies corresponds to a carrier frequency.

17. The apparatus of claim 1, wherein at least one of the first and second arbitrary frequencies corresponds to an analog carrier frequency.

18. An apparatus for generating short-duration pulses, the apparatus comprising:

a first laser configured to generate a first beam, characterized by a first frequency;

a second laser configured to generate a second beam, characterized by a second frequency having a value proximate the value of the first frequency but distinguishably different therefrom;

a first lens region positioned to spatially spread the first beam;

a second lens region positioned to spatially spread the second beam to superimpose on the first beam at a location in space, forming an interference pattern thereat; and

an output target positioned proximate the location in space for receiving a selected portion of the interference pattern.

19. The apparatus of claim 18, further comprising a mask positioned to select the selected portion of the interference pattern.

20. The apparatus of claim 19, wherein the output target is sized to select the selected portion of the interference pattern.

21. The apparatus of claim 20, wherein the output target comprises an optical fiber.

22. The apparatus of claim 21, wherein the optical fiber has a diameter selected to limit the portion of the interference pattern receivable therethrough.

23. The apparatus of claim 18, further comprising a plurality of output targets.

24. The apparatus of claim 23, wherein each output target corresponds permanently to a position in the interference pattern.

25. The apparatus of claim 24, wherein each output target represents a channel for receiving a fully-photonic signal.

26. The apparatus of claim 25, wherein each output target receives, sequentially, a fully-photonic pulse.

27. The apparatus of claim 26, wherein the pulse corresponds to a portion of the interference pattern selected from destructive interference and constructive interference.

28. The apparatus of claim 18, wherein the output target comprises an optical fiber.

29. A method for generating short-duration pulses, the method comprising:

providing an input signal having a first arbitrary frequency;

self-synchronizing the input signal with a photonic output signal having a second arbitrary frequency; and

providing the photonic output signal to a photonic destination device operating at the second arbitrary frequency different from the first arbitrary frequency.

30. The method of claim 29, wherein self-synchronizing is executed at an operation frequency limited by the order of magnitude of a wavelength corresponding to the photonic output signal.

31. The method of claim 30, wherein the input signal is selected from a photonic input signal and an electronic input signal.

32. The method of claim 31, wherein the input signal is an input pulse.

33. The method of claim 32, wherein self-synchronizing further comprises generating a photonic pulse.

34. The method of claim 33, wherein generating further comprises repetitively forming sequences of photonic pulses derived from a beat frequency corresponding to an interaction of two, photonic, source frequencies.

35. The method of claim 34, wherein generating further comprises generating timing pulses as a time base for self-synchronization.

36. The method of claim 35, wherein self-synchronizing further comprises sampling the input signal in order to transfer information therefrom into the output signal.

37. The method of claim 29, wherein the input signal is selected from a photonic input signal and an electronic input signal.

38. The method of claim 29, wherein the input signal is an input pulse.

39. The method of claim 29, wherein self-synchronizing further comprises generating a photonic pulse.

40. The method of claim 29, wherein self-synchronizing further comprises generating repetitively forming sequences of photonic pulses derived from a beat frequency corresponding to an interaction of two, photonic, source frequencies.

41. The method of claim 29, wherein self-synchronizing further comprises generating timing pulses as a time base therefor.

42. The method of claim 29, wherein self-synchronizing further comprises sampling the input signal in order to transfer information therefrom into the output signal.

43. The method of claim 29, wherein at least one of the first and second arbitrary frequencies corresponds to a bit rate.

44. The method of claim 29, wherein at least one of the first and second arbitrary frequencies corresponds to a carrier frequency.

45. The method of claim 29, wherein at least one of the first and second arbitrary frequencies corresponds to an analog carrier frequency.

46. A method for generating short-duration pulses, the method comprising:

generating a first beam, characterized by a first frequency;

generating a second beam, characterized by a second frequency having a value proximate the value of the first frequency but distinguishably different therefrom;

spatially spreading the first beam;

spatially spreading the second beam to superimpose on the first beam at a location in space, forming an interference pattern thereat; and

directing, to a target position, a selected portion of the interference pattern.

47. The method of claim 46, further comprising masking the interference pattern to select the selected portion.

48. The method of claim 46, further comprising selecting the selected portion by defining a target size.

49. The method of claim 46, wherein selecting further comprises selecting an optical fiber to receive the selected portion of the interference pattern.

50. The method of claim 49, wherein the optical fiber has a diameter selected to limit the portion of the interference pattern receivable therethrough.

51. The method of claim 46, further comprising sending the output signal to a plurality of output targets.

52. The method of claim 51, wherein each output target corresponds permanently to a position in the interference pattern.

53. The method of claim 52, wherein each output target represents a channel for receiving a fully-photonic signal.

54. The method of claim 51, wherein each output target receives, sequentially, a fully-photonic pulse.

55. The method of claim 54, wherein the pulse corresponds to a portion of the interference pattern selected from destructive interference and constructive interference.

56. The method of claim 46, wherein the output target comprises an optical fiber.